

The applicant has received and reviewed the office action of September 20, 2005 wherein Examiner Pelham stated claims 1-7, 16 and 18-20 were allowed but objected to claims 11-15 and 23 as being dependent on a rejected base claim but stated that those claims would allowable if rewritten in independent form including all of the limitations of the base claims and an intervening claims.

Claim 21 was rejected under 35 U.S.C. 102(b) as being anticipated by newly cited U.S. patent 3,904,850 and claims 8-10 were rejected as being unpatentable over U.S. patent 3,904,850 in view of U.S. Patent 5,017,758. It is noted that the U.S. patent 3,904,850 is for an entirely different purpose then the present invention. Whereas the invention of claim 21 is directed to the method of making a contact heater the 3,904,850 patent is to positioning a heating element so it grounds out in the event that the ground layer is accidentally pierced.

In response to the objection to claims 11-15, claim 8 has been combined with claim 11 to place claim 8 and its dependent claims in allowable condition. In addition claim 21 has been amended to include the step of placing a second ground member in the heater a feature not shown by the single ground member in 3,904,850.

It is submitted that claims 1-10, 12-16 18-21 and 23 are now in allowable condition and a notice of allowance is requested.

Claims as amended with markings

1. (original) A contact heater comprising a plurality of layers:
 - a first layer of a heat conducting adhesive;
 - a first electrical ground sheet extending along the heat conducting adhesive;
 - a first envelope layer;
 - a carrier layer extending along the heat conduction adhesive;
 - a heating element located on said carrier layer;
 - an electrically insulating layer extending along said heating element;
 - a second electrical ground sheet carried by said electrical insulating layer, said second electrical ground sheet having a plurality of openings therein to permit gas passage therethrough;
 - an electrically insulated layer comprising a second envelope layer extending over said second electrical ground sheet;
 - an electrical cord having a first power lead and a second power lead connected to said heating element and a ground wire electrically secured to said ground sheet and said second ground sheet to prevent accidental shock in the event of a heater failure; and
 - said first envelope layer and said second envelope layer an envelope encapsulating said electrical insulating layers, said heating element and at least one of said electrical ground sheets.
2. (original) The contact heater of claim 1 wherein the heating element has a power density is in excess of 15 watts per square inch.
3. (original) The contact heater of claim 1 wherein the heating element is vulcanized to the carrier layer.

4. (original) The contact heater of claim 1 wherein the carrier layer comprises a layer of silicone rubber.
5. (original) The contact heater of claim 1 wherein the second electrical ground sheet comprises an electrically conducting mesh screen.
6. (original) The contact heater of claim 1 wherein the second electrical ground sheet comprises a sheet of electrically conducting material having a plurality of gas openings therein.
7. (original) The contact heater of claim 1 wherein each of the plurality of layers are flexible to thereby form a flexible contact heater for securement to a surface of a fluid reservoir.
8. (currently amended) A temperature elevation system comprising:
- a vehicle having a fluid reservoir;
 - an electrical heater secured to the fluid reservoir to conduct heat from the electrical heater to the fluid reservoir;
 - a ground member located on a free side of the electrical heating element with the ground member located on the free side of the electrical heating element having a plurality of gas passages therein to permit escape of gas therethrough while providing an electrical ground path in the event of failure of the electrical heater; and
 - a further ground member with the further ground member and the ground member located on opposite sides of the heating element.

9. (previously amended) The temperature elevations system of claim 8 wherein the ground member is contained within an envelope containing the electrical heating element.

10. (original) The temperature elevation system of claim 8 wherein the ground member comprises a mesh screen.

11. (canceled).

12. (currently amended) The temperature elevation system of claim ~~11~~ 8 including a cross over connector electrically connecting the ground member to the ~~electrical~~ further ground member.

13. (original) The temperature elevation system of claim 12 wherein the heater includes a first layer of an electrically insulating layer comprising silicone on one side of the heating element and a second layer of an electrical insulation layer comprises a further layer of silicone on the opposite side of the heating element.

14. (previously amended) The temperature elevation system of claim 13 wherein the layer of silicone comprises a fire extinguishable silicone.

15. (original) The temperature elevation system of claim 14 including a layer of adhesive on said heater for securing said heater to the vehicle reservoir.

16. (previously amended) A heater able of withstanding an overheating condition comprising:

a sealed envelope;

a heating element located in said sealed envelope;

a gas permeable electrical ground member located in the sealed envelope to provide an electrical ground and allow for passage of gas therethrough ;and

a second electrical ground member located on a heat conduction side of the heating element and external to the sealed envelope

17. (canceled)

18. (previously amended) The heater of claim 16 wherein the second electrical ground member and the gas permeable electrical ground member form an electrical ground normal to the surfaces of the heating element.

19. (original) The heater of claim 18 including a cross over electrical ground member electrically connecting the second electrical ground member and the gas permeable electrical ground member to each other.

20 (previously amended) The heater of claim 16 wherein the gas permeable electrical ground member comprises a mesh screen.

21 (currently amended) A method of making a contact heater comprising:

placing an electrically insulating material between a heating element and a gas permeable electrical ground member proximate a further electrical ground member;

sealing the heating element, the electrically insulating material ,the further electrical ground member and the gas permeable electrical ground member in an envelope to form a sealed enclosure around the heating element ,the further electrical ground member and the gas permeable ground member; and

heat sealing layers of an insulating material to each other to form the sealed enclosure.

22 (canceled)

23 (currently amended) The method of claim 21 including the steps of:

adhering a layer of electrically conducting material to a first side of a sheet of an electrically insulating material;

etching away portions of the electrically conducting material to create a resistance heating element extending along the layer of electrically conducting material;


adhering a first electrical ground member to a second side of said electrical insulation material;

~~adding~~ a securing the second electrical ground member having a plurality of gas passage therein to a carrier layer;

securing the first electrical ground ~~sheet-~~ member on one side of the heating element and securing a second electrical ground ~~sheets~~ member around on an opposite side of the heating element to create an electrical grounding envelope around the heating element; and

securing a set of electrical power leads to the heating element and a ground wire to each of the electrical ground members to thereby provide an electrical ground path in the event of failure of the contact heater.

Respectfully submitted,
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